

CLAIMS

1. A device for protecting against arcing events solar array panels and control equipment supplying a main power bus, said control equipment
5 comprising a regulator for controlling a solar array voltage (V_S) including a power dump stage (3) for shunting said solar array voltage as a function of a control signal (DoD),
characterized in that it comprises:

10 a voltage drop detection circuit (1) for detecting a voltage drop in the solar array voltage provided by said solar array panels, said voltage drop detection circuit generating a voltage drop detection signal (V_D), and

an arc-quenching circuit (2) comprising means for generating an output signal (V_O) which is applied as said control signal (DoD) to the power dump stage (3) so as to shunt said solar array voltage (V_S) when a voltage drop is
15 detected by said voltage drop detection circuit.

2. The device according to claim 1, wherein said arc-quenching circuit (2) further comprises means for shaping said output signal (V_O) so as to provide a short initial delay without any action subsequent to a voltage drop
20 detection provided by said voltage drop detection signal (V_D), and after said initial delay an arc-quenching pulse which triggers said power dump stage (3) so as to shunt said solar array voltage (V_S).

3. The device according to claim 2, wherein said arc-quenching
25 circuit (2) further comprises a first monostable (I2) controlling said initial delay and a second monostable (I1) controlling the width of said arc-quenching pulse.

4. The device according to claim 2 or 3, wherein said initial delay is set to about 19 ms and said arc-quenching pulse has a width set to about 1.7 s.
30

5. The device according to anyone of claims 2 to 4, wherein said arc-quenching circuit (2) further comprises means for starting a new quenching cycle including said initial delay followed by said arc-quenching pulse as long as the voltage drop detection circuit (1) detects a voltage drop in said solar array
35 voltage (V_S).

6. The device according to anyone of claims 1 to 5, wherein said voltage drop detection circuit (1) comprises means (T1) for comparing said

- 10 -

solar array voltage (V_S) to a main bus voltage (V_B).

7. The device according to anyone of claims 1 to 6, wherein said arc-quenching circuit (2) further comprises means (G1, G4) for combining said control signal (DoD) and said output signal (V_O) before being applied to the power dump stage (3).